

# “Talking” Mummies

## Lesson Plan

**Grade Level:** 9-12

**Curriculum Focus:** Scientific Inquiry

**Lesson Duration:** One to two class periods

### *Student Objectives*

- Review information about mummies.
- Research a well-known ice mummy.
- Make a class presentation.

### *Materials*

- Video on *unitedstreaming: Forensics: Who Killed the Iceman?*

Search for this video by using the video title (or a portion of it) as the keyword.

Selected clips that support this lesson plan:

- The Discovery of the Iceman's Corpse
  - Ice as an Element of Mummification
  - Using X-Rays and CT Scans to Study the Iceman Mummy
  - Hypothermia or Drowning: What Killed the Iceman?
  - Scientists Discover an Arrowhead in the Iceman's Back
  - Forensic Scientists Locate Ötzi's Origins Using Vegetation
  - Forensic Scientists Reconstruct Ötzi's Face Using Computer Technology
  - Was the Iceman a Community Leader or Shaman?
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- Computer with Internet access
  - Poster paper
  - Markers or similar materials

## Procedures

1. Ask students the following questions about mummies (answers in parentheses).
  - What is a mummy? (A preserved body)
  - How are mummies different from skeletons? (They have some organs, muscles, or other soft tissue.) Explain why some bodies become a skeleton, while others become mummies. (Usually, bacteria or fungi break down soft tissue, leaving a skeleton. When bacteria or fungi cannot grow, the body is preserved and may become mummified.)
  - How are ice mummies different from Egyptian mummies? (Ice mummies were preserved accidentally, frozen by their natural environment. Egyptian mummies were preserved on purpose, through a method called embalming.)
2. Next, ask students to identify what archeologists can learn about a mummy. (The person's gender, age, diet, cause of death, culture, religion, social standing)
  - What clues do archeologists look for in a mummy? (Cultural artifacts, details about bones and wounds, stomach contents, where the mummy was found)
3. Divide the class into two groups and explain that each group will study one of two well-known ice mummies: the Iceman (discovered in the Alps, believed to have died about 5,300 years ago) or the Ice Maiden (a young Inca girl discovered in the Peruvian Andes, believed to have died about 500 years ago).
  - Students will research how archaeologists deciphered clues to learn about the mummy and its culture.
  - They will create a drawing or three-dimensional model of the mummy and its artifacts.
  - They will give a class presentation, using their model to explain what the clues revealed about the mummy and its culture. Students may want to role-play the experts (examples: the team leader who oversees the study, the radiologist who reads X-rays, the pathologist who investigates physical wounds).
4. Provide the following list of questions below to guide research. Explain that each group's presentation should address the questions.
  - Where was this mummy found? How old is it?
  - What do we know about this mummy's age, gender, religion, cause of death? Explain how scientists know this information.
  - Describe the artifacts found with the mummy. What did they reveal?
  - Describe physical characteristics or marks on the mummy. What do they reveal?
  - What other facts have archeologists concluded about this person's life or death?
  - What has the mummy revealed about its society?
  - What technology was used to study this mummy?

- Describe the roles of the experts who study this mummy. (archaeologists, radiologists, pathologists, botanists, anthropologists)
- What questions remain unanswered?

5. Tell students about the following Web sites:

#### **Iceman**

- Ultimate Guide: Iceman  
<http://dsc.discovery.com/convergence/iceman/iceman.html>
- South Tyrol Museum of Archaeology in Bolzano, Italy  
[http://www.archaeologiemuseum.it/f01\\_ice\\_uk.html](http://www.archaeologiemuseum.it/f01_ice_uk.html)
- Otzi  
<http://www.mummytombs.com/mummylocator/featured/otzi.htm>
- The Iceman's Last Meal  
<http://www.pbs.org/wgbh/nova/icemummies/iceman.html>
- Plants and the Iceman  
<http://www.gla.ac.uk/Acad/IBLS/DEEB/jd/otzi.htm>

#### **Ice Maiden**

- Juanita: The Frozen Mummy  
<http://dsc.discovery.com/stories/history/desertmummies/juanita.html>
- The High Mummies  
<http://www.pbs.org/wgbh/nova/peru/mummies/high2.html>
- Juanita: Incan Ice Maiden  
<http://www.mummytombs.com/mummylocator/featured/juanita.htm>
- Andes Expedition: Searching for Inca Secrets (see "Virtual Autopsy")  
<http://www.nationalgeographic.com/features/97/andes/>
- The Ice Maiden of Mt. Ampato  
<http://www.mountain.org/zicemaiden.html>

6. After both presentations, compare the two mummies in terms of their lives and deaths and what they revealed about their cultures? What questions would students like to have answered about these mummies? Would students like to work as archaeologists on ice mummies or other mummies? Have them explain their answers.

### **Assessment**

Use the following three-point rubric to evaluate students' work during this lesson.

- **3 points:** Students were highly engaged in class discussions; demonstrated a clear understanding of mummies, how they are preserved, and why and how archaeologists

study mummies; gave a clear and thorough class presentation that answered all the questions in the assignment.

- **2 points:** Students participated in class discussions; demonstrated an adequate understanding of mummies, how they are preserved, and why and how archaeologists study mummies; gave a complete class presentation that answered most of the questions in the assignment.
- **1 point:** Students participated minimally in class discussions; demonstrated an incomplete understanding of mummies, how they are preserved, and why and how archaeologists study mummies; gave an incomplete class presentation that answered few or none of the questions in the assignment.

## Vocabulary

### archaeology

*Definition:* The scientific study of material remains such as fossils, bones, or relics that reveal information about the human activity of cultures that flourished long ago

*Context:* By studying physical characteristics of a mummy, such as bones and teeth, archaeologists can determine the person's age and gender.

### artifact

*Definition:* An object produced or shaped by human craft, especially a tool, weapon, or ornament of archaeological or historical interest

*Context:* Artifacts found with mummies often reveal important cultural clues.

### mummify

*Definition:* To make into a mummy by embalming and drying; to cause to shrivel and dry up

*Context:* Bodies may become naturally mummified in frozen, dry climates

### mummy

*Definition:* A body that has been preserved by natural or artificial means

*Context:* The Iceman is a well-known mummy discovered frozen in the Alps.

## Academic Standards

### National Academy of Sciences

The National Academy of Sciences provides guidelines for teaching science in grades K–12 to promote scientific literacy. To view the standards, visit this Web site:

<http://books.nap.edu/html/nses/html/overview.html#content>.

This lesson plan addresses the following science standards:

- Science as Inquiry: Understandings about scientific inquiry
- Science and Technology: Abilities of technological design; Understandings about science and technology

### **Mid-continent Research for Education and Learning (McREL)**

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit link:  
<http://www.mcrel.org/compendium/browse.asp>

This lesson plan addresses the following national standards:

- Science – Nature of Science: Understands the nature of scientific inquiry
  - Technology – Understands the nature of technological design, Understands the nature and uses of different forms of technology
  - Language Arts – Reading: Uses reading skills and strategies to understand and interpret a variety of informational texts
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### **Support Materials**

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the Discoveryschool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>